# SMART DOOR LOCKS BLUETOOTH USING MOBILE ANDROID APPLICATION

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# SUPERVISOR'S DECLARATION

I hereby declare that I have checked this thesis/project and in my/our opinion, this thesis/project is adequate in terms of scope and quality for the award of the degree of Bachelor of Computer Science (Network Engineering)

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# STUDENT'S DECLARATION

I hereby declare that the work in this thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Universiti Malaysia Pahang or any other institutions.

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# ABSTRAK

Setiap orang memerlukan tempat perlindungan untuk berlindung dari cuaca buruk serta ancaman daripada binatang dan pencuri. Oleh itu, adalah penting bagi setiap kediaman untuk memastikan keselamatan yang terbaik untuk rumah mereka. Projek yang dibangunkan adalah bertumpu mengenai keselamatan pintu. Projek ini sesuai untuk orang yang selalu menghadapi masalah terlupa di mana kedudukan kunci pintu mereka. Selain daripada itu, masalah yang biasanya dihadapi adalah terlupa untuk membawa kunci apabila keluar. Sekiranya pintu perlu dimasukkan nombor pin untuk membuka pintu, masih ada kemungkinan bagi pemilik kediaman untuk terlupa nombor pin mereka. Objektif projek ini adalah untuk menghasilkan kaedah alternatif untuk melaksanakan keselamatan di pintu. Akhir sekali, untuk menilai tahap penerimaan pengguna. Penyelesaian masalah ini adalah dengan cadangan aplikasi. Tujuan projek ini adalah untuk membina aplikasi android untuk mengunci atau membuka kunci pintu menggunakan Bluetooth melalui peranti pintar. Projek ini bertujuan untuk membangunkan aplikasi android dan mengajar pengguna tentang cara mengendalikan aplikasi ini. Permohonan ini digunakan untuk kediaman manusia. Kaedah ‘Rapid Application Development’ (RAD) dipilih dan dilaksanakan semasa proses permohonan. RAD terdiri daripada 4 fasa iaitu perancangan, reka bentuk dari pengguna, proses pembinaan, dan perlaksaan. Bahasa yang digunakan dalam aplikasi ini adalah bahasa Inggeris.

# ABSTRACT

Everyone need a shelter to cover from bad weather and threats from animals and thief. Thus, it is important in every residence to implement high security for their home. The project development is focus on security of door. This application is suitable for people who always faced problem misplaced their door key. Other than that, the problem that usually faced nowadays is forgot to bring the key when go outside. If the door system need to enter the pin number to unlock the door, there still a chance for the owner to forgot their pin number. The objective of this project is to design an alternative method to implement security on the door. Next, to develop alternative technique that can be used for the security. Lastly, to evaluate user acceptance of the application. The solution of the problems is with the proposed application. The purpose of this project is to develop a mobile android application to lock or unlock the door using Bluetooth via smart device. This project is aiming to develop an interactive android mobile application of smart door and teach user on how to operate the application. This application is targeted for human residence. Rapid Application Development (RAD) methodology is chosen and implemented during the process of the application. RAD consist 4 phase which is planning requirements, user design, rapid construction, and cutover. The language used in this application is English language.

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| | |
|---|---|
| EEP | Electrically Erasable Programmable |
| RAM | Random Access Memory |
| ROM | Read Only Memory |
| MAC | Media Access Control |
| RAD | Rapid Application Development |
| DSDM | Dynamic System Development Method |
| USB | Universal Serial Bus |
| LCD | Light Crystal Display |
| LED | Light Emitting Diode |
| V | Voltage |
| UAT | User Acceptance Test |

# CHAPTER 1

# INTRODUCTION

## 1.1 Background of study

Every home there must be a door as the path of its occupants to enter or leave the home. Thus it is important for the owner the of house to keep the house is safe from the intruders. One way to implement security to the home is by installing lock on the door of house. There are many ways to implement security on the door such as gas sensor (Irimia R & Gottschling M 2016).

This project proposed an alternative way to implement security on door. The proposed system will use technique using lock with Bluetooth. People would not need any key anymore. There also will be a problem to place the keys or to carry it if people have many doors at their house. Furthermore, people could misplace the door key as well. Nowadays, everyone will bring their smartphone together anywhere they would go. Thus, this technique is suitable to implement as security on the door.

## 1.2 Problem statement

i. People nowadays always faced problem of misplaced their door keys. There might be more than one door in the house. So, there are many key and sometimes peoples may forget where they place the key after using it. When the key is missing. The owner need to change the lock or need help of locksmitch.

ii. People always forgot to bring the key when go outside. In order to enter the house without having the key is only by break the door. This situation might cost the owner of the house to fix it.

iii. If the door need to enter pin number to unlock the door, there still a chance for the owner to forgot their pin number. This problem usually occurs after the owner renew the pin number after period of time.

## 1.3 Goal

The goal of this project is to develop the security system for door access by using Bluetooth that available on smart phone.

## 1.4 Objective

In order to achieve project goal, few subjective must be fulfilled. The objective of this project are:

i. To design a safer method to implement security on the door.

ii. To develop the best technique can be that can be used for the security.

iii. To evaluate user acceptance of the application.

## 1.5 Scope

The study is for target user:

i. Public human residence. Public human residence must have room or house that need to secure from thieve.

ii. Android user. This system uses an android application for the end-user.

## 1.6 Significance

This project focus on:

i. Prevent the house from burglary, break in and robbed.

ii. Help peoples to save money and space for key hanging places.

iii. The security of the residence is guaranteed.

## 1.7 Thesis organization

This thesis consists of five chapters.

i. Chapter 1 discuss on the introduction of the project. This chapter describe about the background, problem statement, objective and scope of study.

ii. Chapter 2 is about literature review. This chapter discuss about the comparison between existing application and proposed system.

iii. Chapter 3 is about methodology. This chapter will discuss about methodology will be used for development process.

iv. Chapter 4 will discuss implementation and result. This chapter will display the interface of propose system and result analysis on the application.

v. Chapter 5 is about conclusion. This chapter will come out with summary of the system proposed.

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